

Serial No. 10/615,581

Amendments to Claims:

This listing of claims will replace all prior revisions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An occupant classification system comprising:
 - at least one load sensor for determining a weight of a load on a vehicle seat; and
 - at least one occupant presence detection (OPD) sensor for determining whether the load is an animate occupant based upon a capacitance of the load, wherein the system determines that a child seat is present on the vehicle seat based upon the at least one load sensor determining the weight of the load on the vehicle seat exceeds an empty seat threshold and based upon the OPD sensor indicating that no animate occupant is present.
2. (Cancelled)
3. (Original) The occupant classification system of claim 1 further including a head-tracking system (HTS) for determining a position of a head of an occupant of the vehicle seat.

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4. (Original) The occupant classification system of claim 3 wherein the HTS determines the position of the head in a horizontal plane, and wherein the occupant classification system calculates a weight of the occupant based upon the position of the head of the occupant as determined by the HTS, the load on the vehicle seat as determined by the at least one sensor and the OPD sensor.

5. (Cancel)

6. (Original) The occupant classification system of claim 4 wherein the HTS includes an array of capacitive sensors.

7. (Original) The occupant classification system of claim 4 wherein the system compares the position of the head to a position of the vehicle seat to determine an inclination of the occupant.

8. (Original) The occupant classification system of claim 7 wherein the system determines the weight of the occupant based upon the inclination of the occupant.

9. (Original) The occupant classification system of claim 8 wherein the system further includes a seat back angle sensor, and wherein the system determines the weight of the occupant based upon the angle of the seat back compared to the inclination of the occupant.

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10. (Original) The occupant classification system of claim 9 wherein the system determines whether the occupant is lying against the seat back based upon the angle of the seat back and based upon the inclination of the occupant.

11. (Currently Amended) A method for classifying an occupant of a vehicle seat including the steps of:

- a) determining whether a load on the vehicle seat exceeds an empty seat threshold;
- b) measuring a capacitance of the load on the vehicle seat;
- c) determining whether the load on the vehicle seat is animate or inanimate based upon the capacitance measured in said step b); and
- e) determining that a child seat is present based upon a determination in said step a) that the load exceeds the empty seat threshold and a determination in said step b) c) that the load is inanimate.

12. (Cancelled)

13. (Currently Amended) The method of claim 11 further including the step of:

- e) determining a weight of an occupant based upon said steps a) and b) d).

14. (Currently Amended) The method of claim 13 further including the step of:

- d) f) tracking a position of a head of an occupant of the vehicle seat.

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15. (Currently Amended) The method of claim 14 wherein said step e)-d) further includes the step of determining the weight based upon said step d)-f).
16. (Original) A method for classifying an occupant of a vehicle seat including the steps of:
a) measuring a load on the vehicle seat;
b) determining a position of a head of an occupant of the vehicle seat; and
c) classifying the occupant based upon said steps a) and b).
17. (Original) The method of claim 16 further including the step of:
d) determining whether the occupant is lying against a back of the vehicle seat,
wherein said step c) further includes the step of classifying the occupant based upon said step d).
18. (Original) The method of claim 16 further including the step of:
determining an angle of inclination of the occupant based upon said step b), said step c) further including the step of classifying the occupant based upon the angle of inclination.
19. (Original) The method of claim 18 further including the step of determining a weight of the occupant based upon the angle of inclination.
20. (Original) The method of claim 19 further including the step of determining whether the occupant is in a child seat based upon the angle of inclination.

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21. (Previously Presented) A method for classifying an occupant of a vehicle seat including the steps of:

- a) determining a position of a head of an occupant of the vehicle seat;
- b) determining an angle of inclination of a seat back of the vehicle seat; and
- c) determining whether the occupant is leaning against the seat back based upon said steps a) and b).

22. (Previously Presented) The method of claim 21 further including the step of:

- d) measuring load on the vehicle seat;
- e) determining a weight of the occupant based upon said steps c) and d).

23. (Previously Presented) The method of claim 22 further including the step of compensating for the occupant leaning against the seat back in the determination of the weight of the occupant in said step e).

24. (Previously Presented) The method of claim 21 further including the step of determining a weight of the occupant based upon the angle of inclination.

25. (Currently Amended) The method of claim 21 wherein in said step 1) the position of the head of the occupant is determined independently of a position of a lower body-torso of the occupant on the vehicle seat.

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26. (Currently Amended) The method of claim 16 whercin in said step b) the position of the head of the occupant is determined independently of a position of a lower body-torso of the occupant on the vehicle seat.
27. (New) The method of claim 16 wherein said step b) further includes the step of using a capacitive sensor to determine the position of the head.
28. (New) The method of claim 16 wherein said step b) further includes the step of determining the position of the head of the occupant relative to the vehicle, independently of the position of the vehicle seat.